

process cartridge is mounted to the main body of said apparatus, and whose cross-section has a plurality of corners,

wherein when the photosensitive drum is mounted in the process cartridge in the axial direction thereof, the shaft portion has an area overlapping an area in which the helical gear is provided, and transmits the driving force received from the main body of said apparatus through said twisted hole and the protrusion to said cylinder through the helical gear and the spur gear, and transmits the driving force to said developing roller through the helical gear, and transmits the driving force to said transfer roller through the spur gear; and

(ii) said developing roller for developing an electrostatic latent image formed on the photosensitive drum.

REMARKS

Summary

Independent Claims 1, 7, 13, 19, 20, 26, 32, and 38 recite at least one feature not disclosed or suggested by the patent to Noda, et al. Therefore, is the outstanding rejection of these claims over this patent still proper?

Status of the claims

Claims 1, 2, 4-8, 10-14, and 16-38 are pending. Claims 3, 9, and 15 have been canceled without prejudice. Claims 1, 2, 4-8, 10-14, and 16-38 have been amended to improve their form and Claims 1, 7, 13, and 19 have been amended to overcome a substantive rejection. Claims 1, 7, 13, 19, 20, 26, 32, and 38 are independent.

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Requested action

Applicants respectfully request the Examiner to reconsider and withdraw the outstanding objection and rejection in view of the foregoing amendments and the following remarks.

Formal objection

The Examiner objects to the drawings because they allegedly do not show the second gear portion transmitting its driving force to a transfer roller, as recited by Claims 3, 9, and 15. In response, while not conceding the propriety of the objection, these claims have been canceled without prejudice, thereby rendering the objection moot. Moreover, Figure 6 shows a spur gear 221, which corresponds to the second gear portion, and a transfer roller 70, which corresponds to the transfer roller recited in these claims.

Substantive rejection

Claims 1-38 have been rejected under 35 U.S.C. § 102(b) as being anticipated by the patent to Noda, et al.

Response to substantive rejection

In response, while not conceding the propriety of the rejection, independent Claims 1, 7, 13, and 19 have been amended. Applicants submit that as amended, these claims are allowable for the following reasons. In addition, Applicants submit that independent Claims 20, 26, 32, and 38 are allowable for the reasons discussed below.

A. Independent Claims 1, 7, 13, and 19

Independent Claim 1 relates to a process cartridge detachably mountable to a main body of an electrophotographic image forming apparatus for forming an image on a recording medium. The main body has a twisted hole whose cross-section has a plurality of corners. The process cartridge comprises an electrophotographic photosensitive drum, a developing roller for developing an electrostatic latent image formed on the electrophotographic photosensitive drum, and a driving-force transmitting part provided on one lengthwise end of the electrophotographic photosensitive drum. The driving-force transmitting part has a twisted protrusion to be fitted in the twisted hole. The cross-section of the twisted protrusion has a plurality of corners. The driving-force transmitting part also has a shaft supported by a bearing portion, and a gear portion for transmitting a driving force to the developing roller. The shaft and the gear portion overlap each other in an axial direction of the electrophotographic photosensitive drum. When the twisted hole is rotated with the protrusion fitted in the twisted hole when the process cartridge is mounted to the main body of the apparatus, a rotational force of the twisted hole is transmitted to the electrophotographic photosensitive drum through the protrusion.

Claim 1 has been amended to recite a second gear portion provided in juxtaposed relationship with the gear portion, and transmitting a driving force to a transfer roller provided in the main body of the apparatus,

In contrast, the patent to Noda, et al. is not understood to disclose or suggest such a second gear portion as recited by amended Claim 1. For this reason, amended Claim 1 is allowable over this patent. And because independent Claims 7, 13, and 19 have been amended to recite the same feature, they are allowable for the same or similar reasons.

B. Independent Claims 20, 26, 32, and 38

Independent Claim 20 relates to an electrophotographic photosensitive drum for use in a process cartridge detachably mountable to a main body of an electrophotographic image forming apparatus for forming an image on a recording medium. The main body has a motor, an apparatus main body gear for transmitting a driving force of the motor, and a non-circular twisted hole rotated with the apparatus main body gear. A cross-section of the twisted hole has a plurality of corners. The electrophotographic photosensitive drum comprises a cylinder having a photosensitive layer on the peripheral surface thereof, and a driving-force transmitting part mounted on one end of the cylinder.

The driving-force transmitting part comprises a spur gear for transmitting a driving force received from the main body of the apparatus to a transfer roller provided in the main body of the apparatus when the process cartridge is mounted to the main body of the apparatus. The driving-force transmitting part also comprises a helical gear provided in juxtaposed relationship with the spur gear for transmitting the driving force received from the main body of the apparatus to a developing roller provided in the process cartridge when the process cartridge is mounted to the main body of the apparatus.

The driving-force transmitting part further comprises a shaft portion provided in juxtaposed relationship with the helical gear, and rotatably supported by a bearing portion when the photosensitive drum is mounted in the process cartridge. The driving-force transmitting part also comprises a non-circular twisted protrusion fitted into the twisted hole provided in the main body of the apparatus, to receive the transmission of the driving force from the main body of the apparatus, the cross-section of which has a plurality of corners,

Claim 20 also recites that when the photosensitive drum is mounted in the process cartridge, the shaft portion has an area overlapping an area in which the helical gear is provided. In addition, Claim 20 recites that the driving force received from the main body of the apparatus through the twisted hole and the protrusion is transmitted to the cylinder through the helical gear and the spur gear, and is transmitted to the developing roller through the helical gear, and is transmitted to the transfer roller through the spur gear.

In contrast, the patent to Noda, et al. is not understood to disclose or suggest a spur gear for transmitting a driving force received from a main body of an apparatus to a transfer roller provided in the main body of the apparatus when a process cartridge is mounted to the main body of the apparatus, and a helical gear provided in juxtaposed relationship with the spur gear for transmitting the driving force received from the main body of the apparatus to a developing roller provided in the process cartridge when the process cartridge is mounted to the main body of the apparatus.

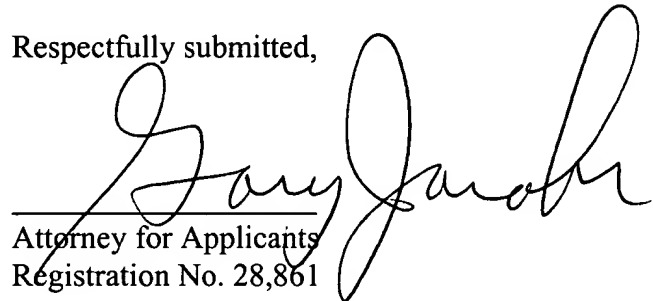
For this reason, Claim 20 is allowable over this patent. And because independent Claims 26, 32, and 38 also recite such a spur gear and a helical gear, they are allowable for the same or similar reasons.

The dependent claims are allowable for the reasons given with respect to the independent claims and because they recite features which are patentable in their own right. Individual consideration of the dependent claims is respectfully solicited.

In view of the above amendments and remarks, the claims are now in allowable form. Therefore, early passage to issue is respectfully solicited.

Applicants' undersigned attorney may be reached in our Washington, D.C. office by telephone at (202) 530-1010. All correspondence should continue to be directed to our below-listed address.

Respectfully submitted,



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MARKED-UP AMENDED ABSTRACT

Please amend the paragraph starting at page 55, line 1 and ending at line 24, as follows.

--ABSTRACT OF THE DISCLOSURE

A process cartridge is detachably mountable to the main body of an electrophotographic image forming apparatus for forming an image on a recording medium[, the]. The image forming apparatus [having] has a twisted hole, [of which] the cross-section of which has a plurality of corners[, the]. The process cartridge [including] includes an electrophotographic photosensitive drum, a developing roller for developing an electrostatic latent image formed on the electrophotographic photosensitive drum, and a driving-force transmitting part provided on one lengthwise [one] end of the electrophotographic photosensitive drum and having a twisted protrusion to be fitted in the hole and [of which the] whose cross-section has a plurality of corners[, and]. The process cartridge also includes a shaft portion supported by a bearing portion, and a gear portion for transmitting a driving force to the developing roller, the shaft portion and the gear portion overlapping each other in the axial direction of the electrophotographic photosensitive drum[, and when the hole is rotated with the protrusion fitted in the hole when the process cartridge is mounted to the main body of the apparatus, the rotational force of the hole is transmitted to the electrophotographic photosensitive drum through the protrusion].--

MARKED-UP AMENDED CLAIMS

1. (Amended) A process cartridge detachably mountable to [a]
a main body of an electrophotographic image forming apparatus for forming an image on a
recording medium, the main body having a twisted hole [of which a] whose cross-section
has a plurality of corners, said process cartridge comprising:

- an electrophotographic photosensitive drum;
- a developing roller for developing an electrostatic latent image formed on said
electrophotographic photosensitive drum; and
- a driving-force transmitting part provided on one lengthwise end of said
electrophotographic photosensitive drum, said driving-force transmitting part [and] having
 - a twisted protrusion to be fitted in [said] the twisted hole, wherein a cross-
section of the twisted protrusion [having] has a plurality of corners,
 - a shaft [portion] supported by a bearing portion, [and]
 - a gear portion for transmitting a driving force to said developing roller, said
shaft [portion] and said gear portion overlapping each other in an axial direction of said
electrophotographic photosensitive drum, and
 - a second gear portion provided in juxtaposed relationship with said gear
portion, and wherein said second gear portion transmits a driving force to a transfer roller
provided in the main body of the apparatus.

wherein when [said] the twisted hole is rotated with said protrusion fitted in [said] the twisted hole when said process cartridge is mounted to [said] the main body of the apparatus, a rotational force of [said] the twisted hole is transmitted to said electrophotographic photosensitive drum through said protrusion.

2. (Amended) A process cartridge according to Claim 1,
wherein said photosensitive drum comprises a drum cylinder,
wherein said driving-force transmitting part further has a coupling portion fitted and fixed to one end of [the] said drum cylinder of said photosensitive drum,
wherein said shaft has a shaft portion overlapping said gear portion, and
wherein said coupling portion, said gear portion, [a] said shaft portion [having an overlap with] overlapping said gear portion, and said protrusion are provided on an end surface of said shaft [portion] and are disposed in said axial direction in the named order, and said coupling portion, said gear portion, said shaft portion overlapping [having the overlap with] said gear portion, and said protrusion are formed into one united body.

4. (Amended) A process cartridge according to Claim [1, 2 or 3] 2,
wherein a through-hole is formed through said coupling portion, said gear portion, said shaft portion overlapping [having the overlap with] said gear portion, and said protrusion, [an earth]
wherein a grounding pin is provided in [said] the through-hole,

wherein said [earth] grounding pin is provided on the inner end surface of said driving-force transmitting part, and is in contact with [an earth] a grounding plate which is in contact with the inner surface of said drum cylinder, whereby when said process cartridge is mounted to [said] the main body of the apparatus, said [earth] grounding pin comes into contact with a main body [earth] grounding contact provided in [said] the twisted hole, and said electrophotographic photosensitive drum is electrically [earthed] grounded to [said] the main body of the apparatus.

5. (Amended) A process cartridge according to Claim 1, 2, [3] or 4, wherein a portion of said shaft [portion] is surrounded by said gear portion.

6. (Amended) A process cartridge according to Claim 1, 2, [3,] or 4 [or 5], wherein the cross-section of [said] the twisted hole is a substantially equilateral triangle, and the cross-section of said protrusion is a substantially equilateral triangle.

7. (Amended) An electrophotographic photosensitive drum used in an electrophotographic image forming apparatus for forming an image on a recording medium, the electrophotographic image forming apparatus having a twisted hole the cross-section of which [a cross-section] has a plurality of corners, said electrophotographic photosensitive drum comprising:

a drum cylinder having a photosensitive layer on a peripheral surface thereof; and

a driving-force transmitting part mounted on one end of said drum cylinder, and
having

a twisted protrusion to be fitted in [said] the twisted hole, wherein a cross-section of said twisted protrusion [having] has a plurality of corners,

a shaft [portion] supported by a bearing portion, [and]

a gear portion for transmitting a driving force to a developing roller, said shaft [portion] and said gear portion overlapping each other in an axial direction of said electrophotographic photosensitive drum, and

a second gear portion provided in juxtaposed relationship with said gear portion, and wherein said second gear portion transmits a driving force to a transfer roller provided in the main body of the apparatus,

wherein when [said] the twisted hole is rotated with said protrusion fitted in [said] the twisted hole when said photosensitive drum is mounted to [a] the main body of [said] the apparatus, a driving force for rotating said electrophotographic photosensitive drum is received from the main body of [said] the apparatus.

8. (Amended) An electrophotographic photosensitive drum according to Claim 7, wherein said driving-force transmitting part further has a coupling portion fitted and fixed to one end of [the] said drum cylinder of said photosensitive drum, wherein said shaft comprises a shaft portion overlapping said gear portion, [and]

wherein said coupling portion, said gear portion, [a] said shaft portion [having an overlap with] overlapping said gear portion, and said protrusion are provided on an end surface of said shaft [portion] and are disposed in said axial direction in the named order, and

wherein said coupling portion, said gear portion, said shaft portion overlapping [having the overlap with] said gear portion, and said protrusion are formed into one united body.

10. (Amended) An electrophotographic photosensitive drum according to Claim [7, 8 or 9] 8,

wherein a through-hole is formed through said coupling portion, said gear portion, said shaft portion overlapping [having the overlap with] said gear portion, and said protrusion,

wherein [an earth] a grounding pin is provided in [said] the through-hole,

wherein said [earth] grounding pin is provided on the inner end surface of said driving-force transmitting part, and is in contact with [an earth] a grounding plate which is in contact with the inner surface of said drum cylinder, whereby when said electrophotographic photosensitive drum is mounted to [said] the main body of the apparatus, said [earth] grounding pin comes into contact with a main body [earth] grounding contact provided in said twisted hole, and said electrophotographic

photosensitive drum is electrically [earthed] grounded to [said] the main body of the apparatus.

11. (Amended) An electrophotographic photosensitive drum according to Claim 7, 8, [9] or 10, wherein a portion of said shaft [portion] is surrounded by said gear portion.

12. (Amended) An electrophotographic photosensitive drum according to Claim 7, 8, [9,] or 10 [or 11], wherein the cross-section of [said] the twisted hole is a substantially equilateral triangle, and the cross-section of said protrusion is a substantially equilateral triangle.

13. (Amended) A driving-force transmitting part mounted on one end of an electrophotographic photosensitive drum used in a process cartridge detachably mountable to a main body of an electrophotographic image forming apparatus for forming an image on a recording medium, the electrophotographic image forming apparatus having a twisted hole [of which a] whose cross-section has a plurality of corners, said driving-force transmitting part comprising:

a twisted protrusion to be fitted into [said] the twisted hole when [said] the process cartridge is mounted to [said] the main body of the apparatus, wherein a cross-section of said twisted protrusion [having] had a plurality of corners;

a shaft [portion] supported by a bearing portion when said driving-force transmitting part is mounted in [said] the process cartridge; [and]

a gear portion for transmitting a driving force to a developing roller, wherein said shaft comprises a shaft portion at which said shaft [portion] and said gear portion [overlapping] overlap each other in an axial direction of [said] the electrophotographic photosensitive drum, and

a second gear portion provided in juxtaposed relationship with said gear portion, wherein said second gear portion transmits a driving force to a transfer roller provided in the main body of the apparatus.

wherein when [said] the twisted hole is rotated with said protrusion fitted in [said] the twisted hole when [said] the process cartridge is mounted to [said] the main body of the apparatus, the rotational force of [said] the twisted hole is received by said protrusion [receives a driving force] for rotating [said] the electrophotographic photosensitive drum from [said] the rotational force from the main body of the apparatus [through said protrusion].

14. (Amended) A driving-force transmitting part according to Claim 13, wherein the electrophotographic photosensitive drum comprises a drum cylinder, wherein said driving-force receiving part further [comprising] comprises a coupling portion fitted and fixed to one end of the drum cylinder of [said] the photosensitive drum,

wherein said coupling portion, said gear portion, a shaft portion overlapping [having an overlap with] said gear portion, and said protrusion are provided on an end surface of said shaft [portion] and are disposed in said axial direction in the named order,

wherein [and] said coupling portion, said gear portion, said shaft portion overlapping [having the overlap with] said gear portion, and said protrusion are formed into one united body.

16. (Amended) A driving-force transmitting part according to Claim [13,] 14 [or 15],

wherein a through-hole is formed through said coupling portion, said gear portion, said shaft portion overlapping [having the overlap with] said gear portion, and said protrusion,

wherein [an earth] a grounding pin is provided in [said] the through-hole,

wherein said [earth] grounding pin is provided on the inner end surface of said driving-force transmitting part, and is in contact with [an earth] a grounding plate which is in contact with the inner surface of [said] the drum cylinder, whereby when [said] the process cartridge is mounted to [said] the main body of the apparatus, said [earth] grounding pin comes into contact with a main body [earth] grounding contact provided in [said] the twisted hole, and [said] the electrophotographic photosensitive drum is electrically [earthed] grounded to [said] the main body of the apparatus.

17. (Amended) A driving-force transmitting part according to Claim 13, 14, [15] or 16, wherein a portion of said shaft [portion] is surrounded by said gear portion.

18. (Amended) A driving-force transmitting part according to Claim 13, 14, [15,] or 16 [or 17], wherein the cross-section of [said] the twisted hole is a substantially equilateral triangle, and the cross-section of said protrusion is a substantially equilateral triangle.

19. (Amended) An electrophotographic image forming apparatus to which a process cartridge is detachably mountable for forming an image on a recording medium, comprising:

(a) a twisted hole [of which a] whose cross-section has a plurality of corners; and
(b) a mounting portion for detachably mounting the process cartridge, the process cartridge having:

an electrophotographic photosensitive drum;
a developing roller for developing an electrostatic latent image formed on [said] the electrophotographic photosensitive drum;

a driving-force transmitting part provided on [lengthwise] one lengthwise end of [said] the electrophotographic photosensitive drum, and having

a twisted protrusion to be fitted in [said] said twisted hole, wherein a cross-section of the twisted protrusion [having] has a plurality of corners,

a shaft portion supported by a bearing portion, [and]
a gear portion for transmitting a driving force to [said] the developing roller,
[said] wherein the shaft comprises a shaft portion where said shaft [portion] and [said] the
gear portion overlap [overlapping] each other in an axial direction of said
electrophotographic photosensitive drum, and a second gear portion provided in juxtaposed
relationship with said gear portion, and said second gear portion transmits a driving force to
a transfer roller provided in the main body of the apparatus.

wherein when said twisted hole is rotated with said protrusion fitted in said twisted
hole when [said] the process cartridge is mounted to the main body of said apparatus, the
rotation of said twisted hole is transmitted to [said] the electrophotographic photosensitive
drum through [said] the protrusion.

20. (Amended) An electrophotographic photosensitive drum for use in a process
cartridge detachably mountable to a main body of an electrophotographic image forming
apparatus for forming an image on a recording medium, the main body having a motor,
an apparatus main body gear for transmitting a driving force of [said] the motor, and a non-
circular twisted hole rotated with [said] the apparatus main body gear, a cross-section of the
twisted hole having a plurality of corners, said electrophotographic photosensitive drum
comprising:

a. a cylinder having a photosensitive layer on the peripheral surface thereof; and

b. a driving-force transmitting part mounted on one end of said cylinder, [and the] said driving-force transmitting part [having] comprising:

a spur gear for transmitting a driving force received from [said] the main body of the apparatus to a transfer roller provided in [said] the main body of the apparatus when [said] the process cartridge is mounted to [said] the main body of the apparatus,

a helical gear provided in juxtaposed relationship with said spur gear for transmitting the driving force received from [said] the main body of the apparatus to a developing roller provided in [said] the process cartridge when [said] the process cartridge is mounted to [said] the main body of the apparatus,

a shaft portion provided in juxtaposed relationship with said helical gear, and rotatably supported by a bearing portion when said photosensitive drum is mounted in [said] the process cartridge, and

a non-circular twisted protrusion fitted into [said] the twisted hole provided in [said] the main body of the apparatus, to receive the transmission of the driving force from [said] the main body of the apparatus, [and of which] the cross-section of which has a plurality of corners,

wherein when said photosensitive drum is mounted in [said] the process cartridge, said shaft portion has an area overlapping an area in which said helical gear is provided, and

wherein the driving force received from [said] the main body of the apparatus through [said] the twisted hole and said protrusion is transmitted to said cylinder through

said helical gear and said spur gear, and is transmitted to [said] the developing roller through said helical gear, and is transmitted to [said] the transfer roller through said spur gear.

21. (Amended) An electrophotographic photosensitive drum according to Claim 20, wherein on the end surface of said helical gear, a circular recess is provided on a line coaxial with [said] an axis, and [said] the bearing portion slides with the outer peripheral surface of said shaft portion and the inner peripheral surface of said recess which is continuous from said outer peripheral surface, and rotatably supports said shaft portion and said recess.

22. (Amended) An electrophotographic photosensitive drum according to Claim [20 or] 21, further comprising [an earth] a grounding member for grounding said photosensitive drum to [said] the main body of the apparatus when [said] the process cartridge is mounted to [said] the main body of the apparatus, said [earth] grounding member being provided at the center of said driving-force transmitting part [through the same] in [said] an axial direction thereof.

23. (Amended) An electrophotographic photosensitive drum according to Claim 20, 21 or 22, wherein said driving-force transmitting part is one united body made of resin

into which a fitted portion fitted to one end of said cylinder, said spur gear, said helical gear and said protrusion [are] is formed integrally.

24. (Amended) An electrophotographic photosensitive drum according to Claim 20, 21, or 22 or [23], wherein the tooth width of said spur gear is narrower than the tooth width of said helical gear, and the number of teeth of said spur gear is smaller than the number of teeth of said helical gear.

25. (Amended) An electrophotographic photosensitive drum according to Claim 20, 21, or 22[, 23 or 24], wherein the shape of said protrusion is a twisted substantially equilateral triangular prism, wherein the corners of said substantially equilateral triangular prism are chamfered, and said protrusion is fitted into [said] the twisted hole [of which the] whose cross-section is a substantially equilateral triangle.

26. (Amended) A process cartridge detachably mountable to a main body of an electrophotographic image forming apparatus for forming an image on a recording medium, the electrophotographic image forming apparatus having a motor, a main body gear for transmitting a driving force of [said] the motor, and a non-circular twisted hole provided in a central portion of [said] the main body gear and rotated with [said] the main body gear, wherein a cross-section of the twisted hole [having] has a plurality of corners, said process cartridge comprising:

(a) an electrophotographic photosensitive drum having:

a. a cylinder having a photosensitive layer on a peripheral surface thereof; and

b. a driving-force transmitting part mounted on one end of said cylinder and having

a spur gear for transmitting a driving force received from [said] the main body of the apparatus to a transfer roller provided in [said] the main body of the apparatus when said process cartridge is mounted to [said] the main body of the apparatus,

a helical gear provided in juxtaposed relationship with said spur gear for transmitting the driving force received from [said] the main body of the apparatus to a developing roller provided in said process cartridge when said process cartridge is mounted to [said] the main body of the apparatus,

a shaft portion provided in juxtaposed relationship with said helical gear, and rotatably supported by a bearing portion when said photosensitive drum is mounted in said process cartridge, and

a non-circular twisted protrusion to be fitted into [said] the twisted hole when said process cartridge is mounted to [said] the main body of the apparatus to receive the transmission of the driving force from [said] the main body of the apparatus and [of which the] whose cross-section has a plurality of corners,

wherein when said photosensitive drum is mounted in said process cartridge in the axial direction thereof, said shaft portion has an area overlapping an area in which said helical gear is provided, and transmits the driving force received from [said] the main body of the apparatus to said cylinder through said helical gear and said spur gear, and transmits

the driving force to said developing roller through said helical gear, and transmits the driving force to [said] the transfer roller through said spur gear; and

(b) said developing roller for developing an electrostatic latent image formed on said photosensitive drum.

27. (Amended) A process cartridge according to Claim 26, wherein on the end surface of said helical gear, a circular recess is provided on a line coaxial with [said] an axis, and [said] the bearing portion slides with the outer peripheral surface of said shaft portion and the inner peripheral surface of said recess which is continuous from said outer peripheral surface, and rotatably supports said shaft portion and said recess.

28. (Amended) A process cartridge according to Claim 26 or 27, further comprising [an earth] a grounding member for grounding said photosensitive drum to [said] the main body of the apparatus when said process cartridge is mounted to [said] the main body of the apparatus, said [earth] grounding member being provided at the center of said driving-force transmitting part [through the same] in [said] an axial direction thereof.

29. (Amended) A process cartridge according to Claim 26[, or 27 [or 28], wherein said driving-force transmitting part is one united body made of resin into which a fitted portion fitted to one end of said cylinder, said spur gear, said helical gear and said protrusion [are] is formed integrally.

30. (Amended) A process cartridge according to Claim 26[, or 27[, 28 or 29], wherein the tooth width of said spur gear is narrower than the tooth width of said helical gear, and the number of teeth of said spur gear is smaller than the number of teeth of said helical gear.

31. (Amended) A process cartridge according to Claim 26[, or 27[, 28, 29 or 30], wherein the shape of said protrusion is a twisted substantially equilateral triangular prism, wherein the corners of said substantially equilateral triangular prism are chamfered, and wherein said protrusion is fitted in [said] the twisted hole [of which the] whose cross-section is a substantially equilateral triangle.

32. (Amended) A driving-force transmitting part for use in a process cartridge detachably mountable to a main body of an electrophotographic image forming apparatus for forming an image on a recording medium, the electrophotographic image forming apparatus having a motor, a main body gear for transmitting a driving force of [said] the motor, and a non-circular twisted hole formed in the central portion of [said] the main body gear and rotated with [said] the main body gear, wherein a cross-section of the twisted hole [having] has a plurality of corners, said driving-force transmitting part comprising:

a fitted portion to be fitted to a cylinder of an electrophotographic photosensitive drum in order to be mounted on one end of [said] the cylinder;

a spur gear for transmitting a driving force received from [said] the main body of the apparatus to a transfer roller provided in [said] the main body of the apparatus when [said] the process cartridge is mounted to [said] the main body of the apparatus;

a helical gear provided in juxtaposed relationship with said spur gear for transmitting the driving force received from [said] the main body of the apparatus to a developing roller provided in [said] the process cartridge when [said] the process cartridge is mounted to [said] the main body of the apparatus;

a shaft portion provided in juxtaposed relationship with said helical gear, and rotatably supported by a bearing portion when [said] the photosensitive drum is mounted in [said] the process cartridge; and

a non-circular twisted protrusion to be fitted into [said] the twisted hole to receive the transmission of the driving force from [said] the main body of the apparatus wherein the [and of which the] cross-section of said protrusion has a plurality of corners,

wherein when [said] the photosensitive drum is mounted in [said] the process cartridge in an axial direction thereof, said shaft portion has an area overlapping an area in which said helical gear is provided, and transmits the driving force received from [said] the main body of the apparatus through [said] the twisted hole and said protrusion to [said] the cylinder through said helical gear and said spur gear, and transmits the driving force to [said] the developing roller through said helical gear, and transmits the driving force to [said] the transfer roller through said spur gear.

33. (Amended) A driving-force transmitting part according to Claim 32, wherein on the end surface of said helical gear, a circular recess is provided on a line coaxial with [said] an axis, and [said] the bearing portion slides with the outer peripheral surface of said shaft portion and the inner peripheral surface of said recess which is continuous from said outer peripheral surface, and rotatably supports said shaft portion and said recess.

34. (Amended) A driving-force transmitting part according to Claim 32 or 33, further comprising [an earth] a grounding member for grounding [said] the photosensitive drum to [said] the main body of the apparatus when [said] the process cartridge is mounted to [said] the main body of the apparatus, said [earth] grounding member being provided at the center of said driving-force transmitting part [through the same] in [said] an axial direction thereof.

35. (Amended) A driving-force transmitting part according to Claim 32[,] or 33 [or 34], wherein said driving-force transmitting part is one united body made of resin into which the fitted portion to be fitted to one end of said cylinder, said spur gear, said helical gear and said protrusion [are] is formed integrally.

36. (Amended) A driving-force transmitting part according to Claim 32[,] or 33[, 34 or 35], wherein the tooth width of said spur gear is narrower than the tooth width of said

helical gear, and the number of teeth of said spur gear is smaller than the number of teeth of said helical gear.

37. (Amended) A driving-force transmitting part according to Claim 32[, or 33[, 34, 35 or 36], wherein the shape of said protrusion is a twisted substantially equilateral triangular prism, the corners of said substantially equilateral triangular prism are chamfered, and said protrusion is fitted in [said] the twisted hole [of which the] whose cross-section is a substantially equilateral triangle.

38. (Amended) An electrophotographic image forming apparatus to which a process cartridge is detachably mountable for forming an image on a recording medium, comprising:

- (a) a motor;
- (b) a main body gear in a main body of said apparatus for transmitting a driving force of said motor;
- (c) a non-circular twisted hole provided in a central portion of said main body gear and rotated with said main body gear, a cross-section of said twisted hole having a plurality of corners;
- (d) a transfer roller for transferring a developed image formed on [said] an electrophotographic photosensitive drum to [said] the recording medium; and

(e) a mounting portion for detachably mounting the process cartridge, the process cartridge having:

(i) the [an] electrophotographic photosensitive drum including:

- a. a cylinder having a photosensitive layer on a peripheral surface thereof;
- b. a driving-force transmitting part mounted on one end of [said] the cylinder,

and the driving-force transmitting part having

a spur gear for transmitting a driving force received from the main body of said apparatus to said transfer roller when [said] the process cartridge is mounted to [said] the main body of [the] said apparatus,

a helical gear provided in juxtaposed relationship with [said] the spur gear for transmitting the driving force received from [said] the main body of [the] said apparatus to a developing roller provided in [said] the process cartridge when [said] the process cartridge is mounted to [said] the main body of [the] said apparatus,

a shaft portion provided in juxtaposed relationship with [said] the helical gear, and rotatably supported by a bearing portion when [said] the photosensitive drum is mounted in [said] the process cartridge, and

a non-circular twisted protrusion fitted into said twisted hole to receive the transmission of the driving force from [said] the main body of [the] said apparatus when [said] the process cartridge is mounted to [said] the main body of [the] said apparatus, and [of which the] whose cross-section has a plurality of corners,

wherein when [said] the photosensitive drum is mounted in [said] the process cartridge

in the axial direction thereof, [said] the shaft portion has an area overlapping an area in which [said] the helical gear is provided, and transmits the driving force received from [said] the main body of [the] said apparatus through said twisted hole and [said] the protrusion to said cylinder through [said] the helical gear and [said] the spur gear, and transmits the driving force to said developing roller through [said] the helical gear, and transmits the driving force to said transfer roller through [said] the spur gear; and

(ii) said developing roller for developing an electrostatic latent image formed on [said] the photosensitive drum.